produced during the interval of time is analyzed to determine if it corresponds to a gesture command. If a gesture command is determined at step **220**, step **230** then occurs: the gesture command is processed as if it had been processed at time t_s.

Position commands can be utilized in parallel with gesture commands. In step **241**, the signal is analyzed to determine a series of position commands. At step **242**, each position command is processed upon determination. If a gesture command exists during the interval of time, the various orientations present in the gesture command may falsely be determined, at step **241**, as position commands. The false position commands will then inappropriately be processed at step **242**. The confusion is corrected at step **230**. By processing the gesture command as if it had been processed at the beginning of the interval of time, the effects of the false position commands are rejected. That is, the gesture command controls the device as of the orientation that existed at the time t_s.

Steps **211** and **231** as shown in FIG. **6** indicate one implementation of the above method. At step **211**, the state of the device is recorded. Recording is done continuously. At step **231**, recorded state data of the device is provided for the processing of the gesture command performed at step **230**. State data that was recorded at time ts provides a reference for the appropriate processing of the gesture command in step **230**.

A simple example of the recording of state data can be given with reference to FIG. **4***a*. A series of position commands would cause scrolling of the alphabet that appears in the GUI displayed in FIG. **4***a*. As the display scrolls, the state of the display would be recorded over time. That is, the letter that was highlighted at a particular point in time in the past could be determined by recalling the recorded data for that particular point in time. After submission of a gesture command, the gesture command could then be correctly applied to the letter that was highlighted at the beginning of the gesture command by recalling the state data for that time.

3. Button Free Wearable Computer

FIG. **7** depicts a wearable computer **300** mounted on a superior dorsal aspect of a hand. The wearable computer **300** includes a motion sensor **330**. The wearable computer **300** is handheld in the sense that it is mounted to the hand. With this mount location, convenient wrist and forearm rotational movements can be used to move the computer **300** about three orthogonal axes of rotation. Thus, a variety of position and gesture commands can be easily submitted to the wearable computer **300**. A range of command input is available, through use of gesture commands, without recourse to buttons or other options that would require use of fingers.

The computer **300** can include a display screen **310** for display of data such as the GUI described above in Section 1 part c. Alternatively, the display screen **310** can display the image database described above in Section 1 Part c. Given the superior dorsal aspect location of the display screen **310**, the display screen **310** is readily visible and conveniently located. The wearer can observe the display screen **310** with the wearer's hand held in a comfortable position and without interference from typical clothing. The fingers of the hand are free for other activities, such as holding a pen. Buttons **320** can be included in the computer **300** to provide alternative options for button entry of commands, e.g. on and off commands.

In one embodiment, as depicted in FIG. **7**, the components of the wearable computer **300** are housed in an enclosure that possesses an approximately triangular shape with rounded vertices to conform to the superior dorsal aspect portion of the hand. The underside of the enclosure can further be shaped to conform to the surface of the superior dorsal aspect portion of the hand. Soft or flexible material can be employed in the enclosure to increase the comfort of the user. Further, the material can be textured or colored to disguise the presence of the computer **300** on the user's hand.

Alternative locations for the wearable computer can be envisioned. Placement on a foot would still permit movement about three axes as would placement on a head. Thus, an individual with diminished use of arms or arms and legs would have other options for interaction with a computing device through body movements. Placement at other locations on a hand would still permit movement about all three axes though without the convenience specific to the superior dorsal aspect location.

The mount that positions the wearable computer **300** at the superior dorsal aspect location can include various features, such as: straps; an adhesive; suction cups; a ring; a bracelet; or the computer **300** can be built into a glove.

Alternatively, components of the wearable computer **300** can be placed at different locations on or off of the body. For example, the motion sensor **330** can be mounted to the superior dorsal aspect of the hand while the display screen **310** is mounted elsewhere on the body or is placed off of the body.

Rather than a computer, the wearable device alternatively can be one of a variety of computing devices, e.g. a cellular phone, a pager, a two-way radio, or a multifunction wristwatch. If included, the display screen **300** can display data relevant to the particular computing device.

The above embodiments are merely illustrative. Those skilled in the art may make various modifications and changes that will embody the principles of the invention and fall within the scope of the invention.

I claim:

1. A method for controlling a handheld computing device, comprising the steps of:

without using buttons for command input, measuring movement of the handheld computing device over an interval of time with a motion sensor mounted to the handheld computing device, the measuring producing a signal, wherein the movement measured is movement of the entire handheld computing device;

analyzing the signal measured over the interval of time to determine a gesture command that corresponds to the movement of the handheld computing device; and

processing the gesture command to control the handheld computing device.

2. The method of claim **1** including comparing the signal to a catalog of a plurality of feature commands to determine a particular gesture command.

3. The method of claim **1** wherein the gesture command corresponds to a pattern of movement of the handheld device that is measured as a function of time F(t), where t_s is a start time and t_f is a finish time such that the interval of time is t_f minus t_s.

4. The method of claim **1** wherein the gesture command corresponds to angular orientations of the entire handheld device as measured over the interval of time.

5. An apparatus for controlling a handheld computing device, comprising:

a motion sensor mounted to the handheld computing device for measuring movement of the device over an interval of time, the measuring producing a signal representative of movement of the entire handheld